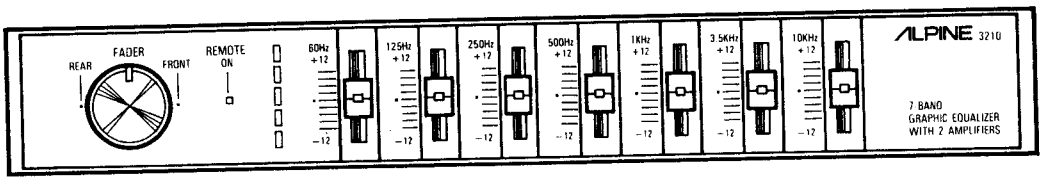
ALPINE SERVICE MANUAL

7-Band Graphic Equalizer Amplifier



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Specifications

Power Supply	14.4V DC
Current Drain	5A
Power Output (1 kHz, THD 8%)	12w/ch
Equalization Range	±10dB
Equalization Frequency	60 Hz/125 Hz/250 Hz/500 Hz/1 kHz/3.5 kHz/10 kHz
Frequency Response (−3dB, Output 1W)	50 Hz to 15 kHz
Residual Noise (Input shorted)	3.0 mV
Input Sensitivity/Impedance (SP Input)	2.0V±1 dB/100±20 ohms
(DIN Input)	500 mV±1 dB/10k±2k ohms
Signal to Noise Ratio (IHF-A)	50 dB
Total Harmonic Distortion	0.5%
Output Impedance	4 ohms
Zero Signal Current Drain	0.6 A
Channel Separation (1 kHz)	45 dB
Semiconductors	12 ICs, 3 Transistors, 10 Diodes
Dimensions (W×H×D)	178(W)×25(H)×135(D) mm
Weight	1.0 kg

Parts Locations and Disassembly Instructions

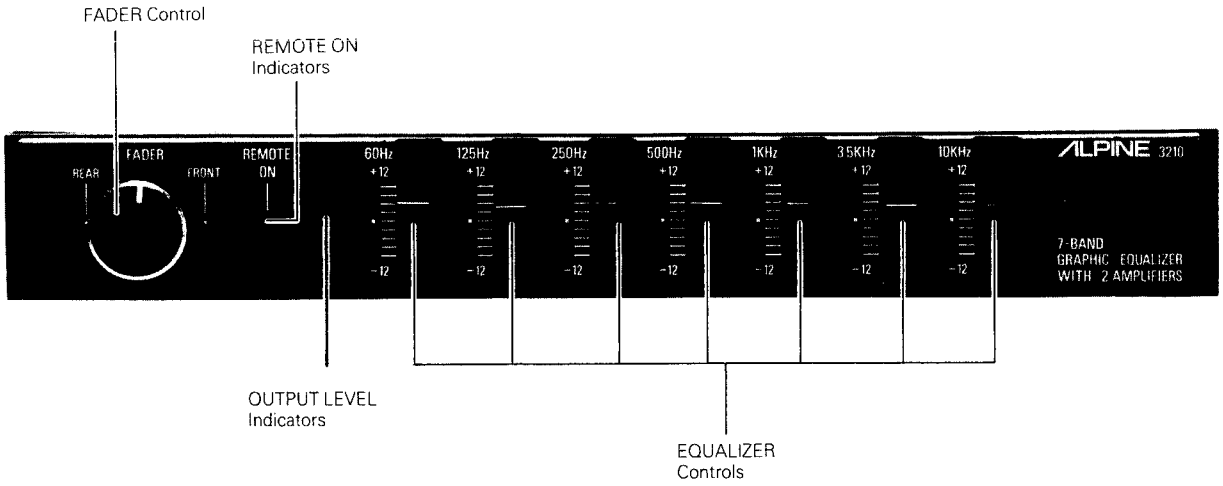


Figure 1

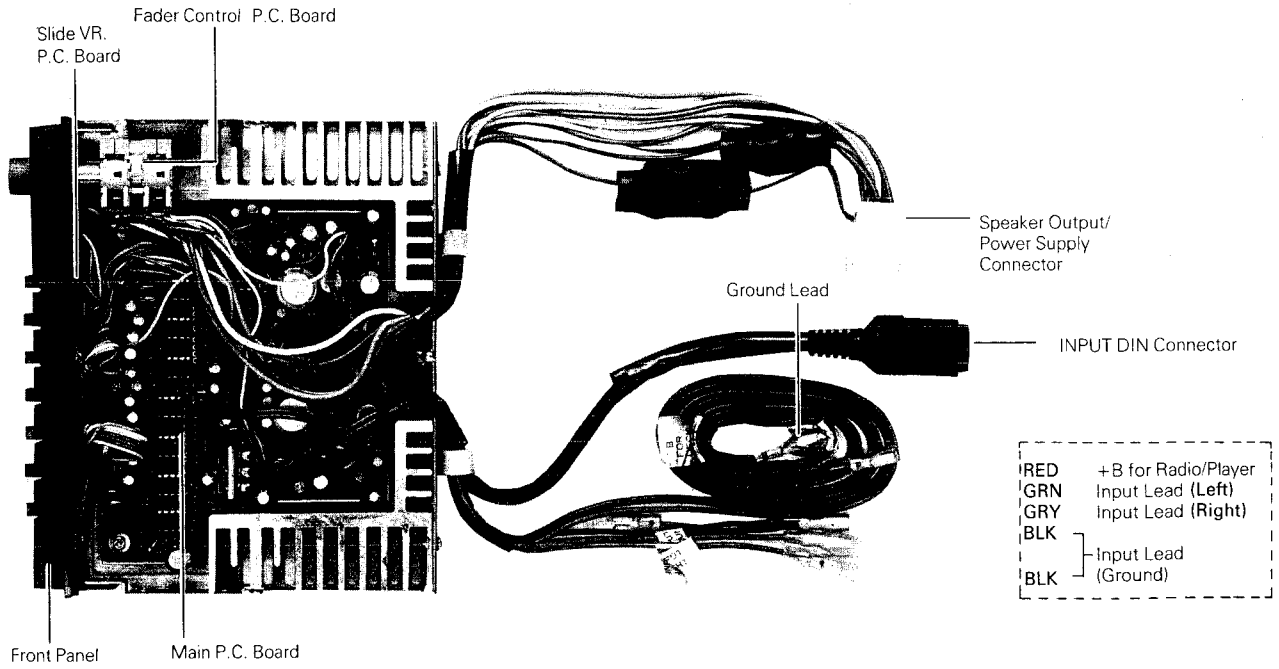


Figure 2

1. Removal of Top Cover

(1) Remove four screws marked "○" as shown in Figure 3 and 4

2. Removal of Bottom Cover

(1) Remove two screws marked "△" as shown in Figure 5.

3. Removal of Nosepiece

(1) After removal of the top cover, remove knobs (A) as shown in Figure 3.
(2) Pull out the Nosepiece in the arrow direction as shown in Figure 3.
(3) Remove three screws marked "□" as shown in Figure 6.

4. Removal of Slide VR P.C. Board

(1) After removal of Nosepiece, disconnect all wires from the P.C. Board.

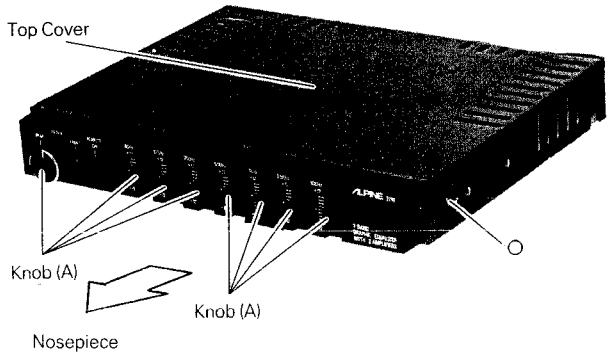


Figure 3

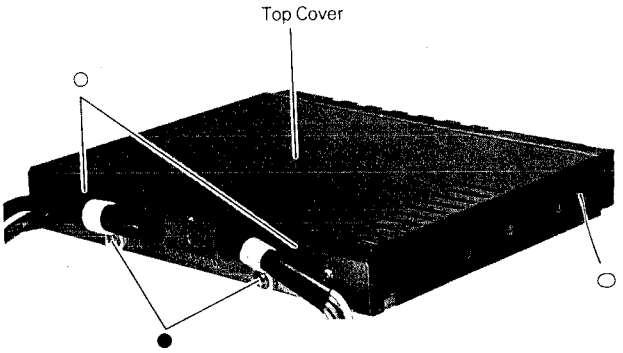


Figure 4

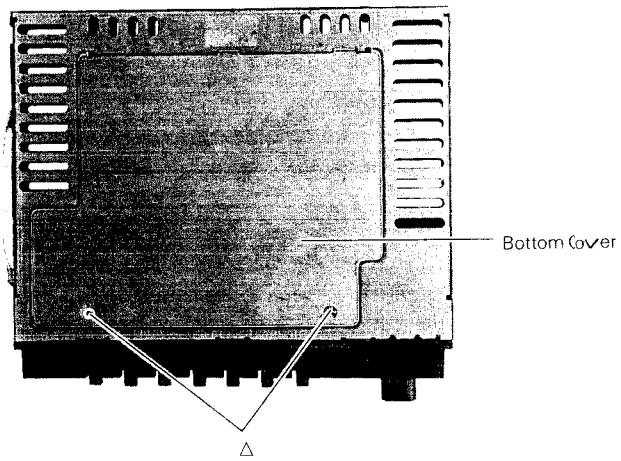


Figure 5

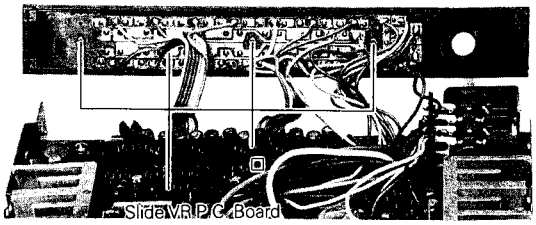


Figure 6

5. Removal of Fader Control P.C. Board

(1) After removal of Nosepiece, remove a nut as shown in Figure 7.
(2) Disconnect all wires from the P.C. Board.

6. Removal of Main P.C. Board

(1) After removal of top cover, remove eight screws marked "●" as shown in Figure 4 and 8.
(2) Disconnect all wires from the P.C. Board.

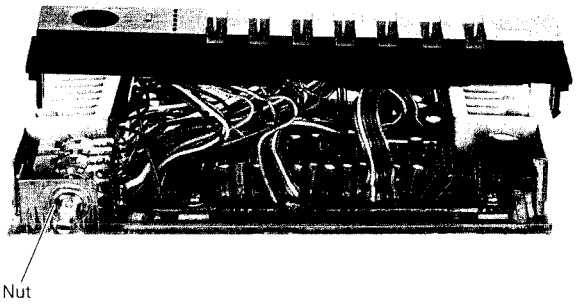


Figure 7

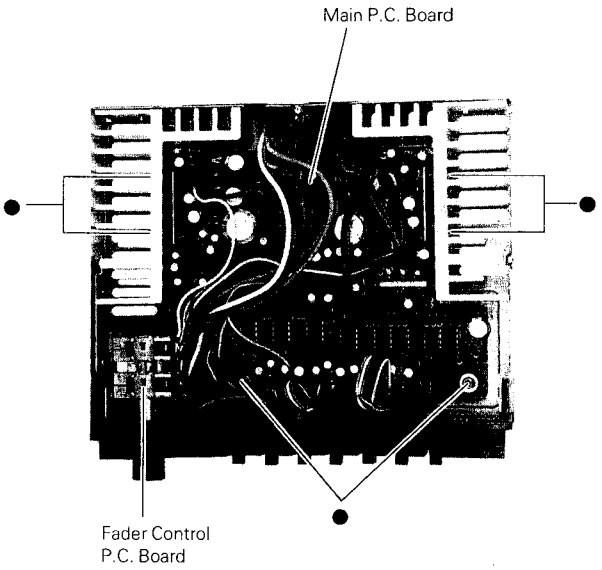
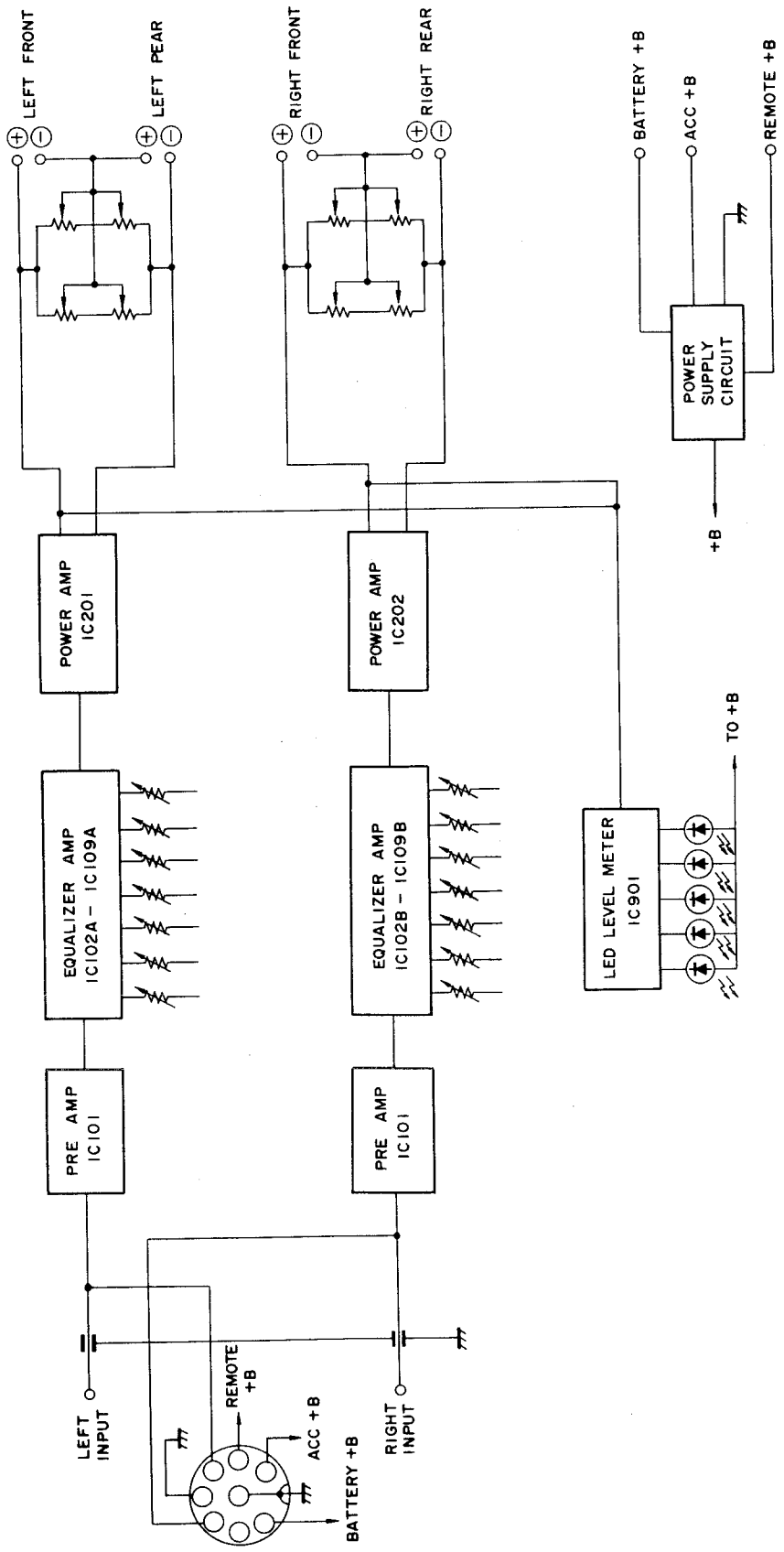


Figure 8

Block Diagram



Parts Layout on P.C. Boards

• Main P.C. Board

IC101–109

1	2	3	4	8
5.89	5.89	5.89	0	11.69

IC201

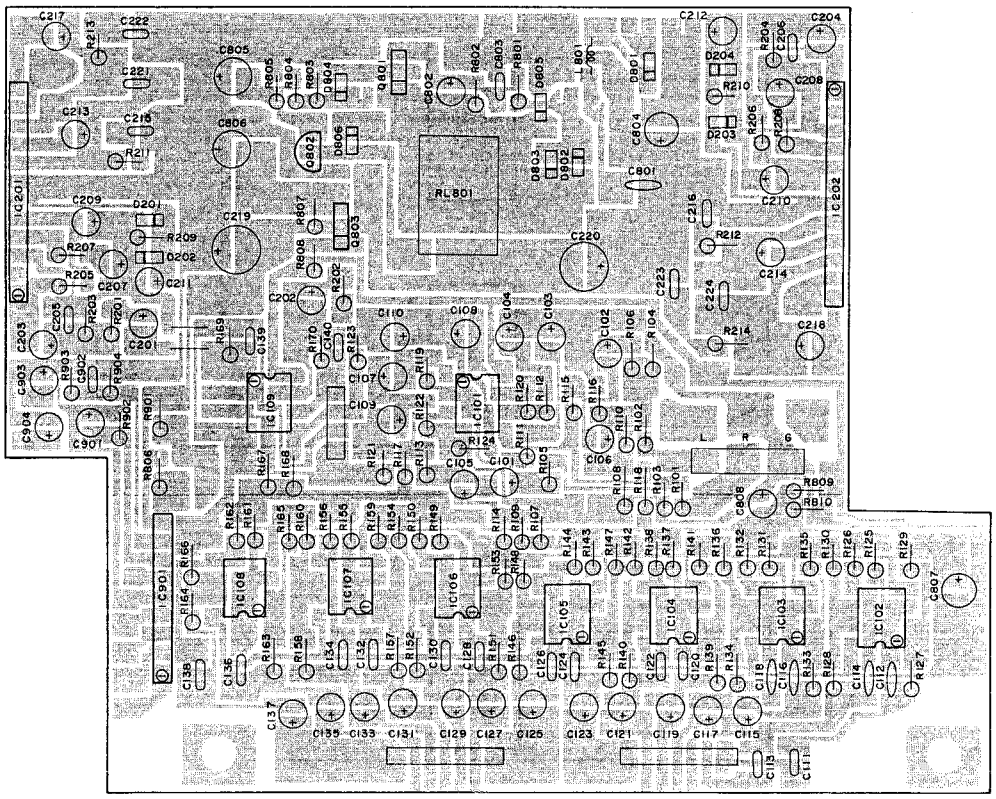
1	3	4	5	7	8	9	10	11	12
3.6	0	3.6	3.6	0	7.2	3.2	7.2	14.35	13.2

IC901

1	2	3	4	5	6	7	8	9
12.68	12.68	12.75	12.75	0	12.66	0	0	14.35

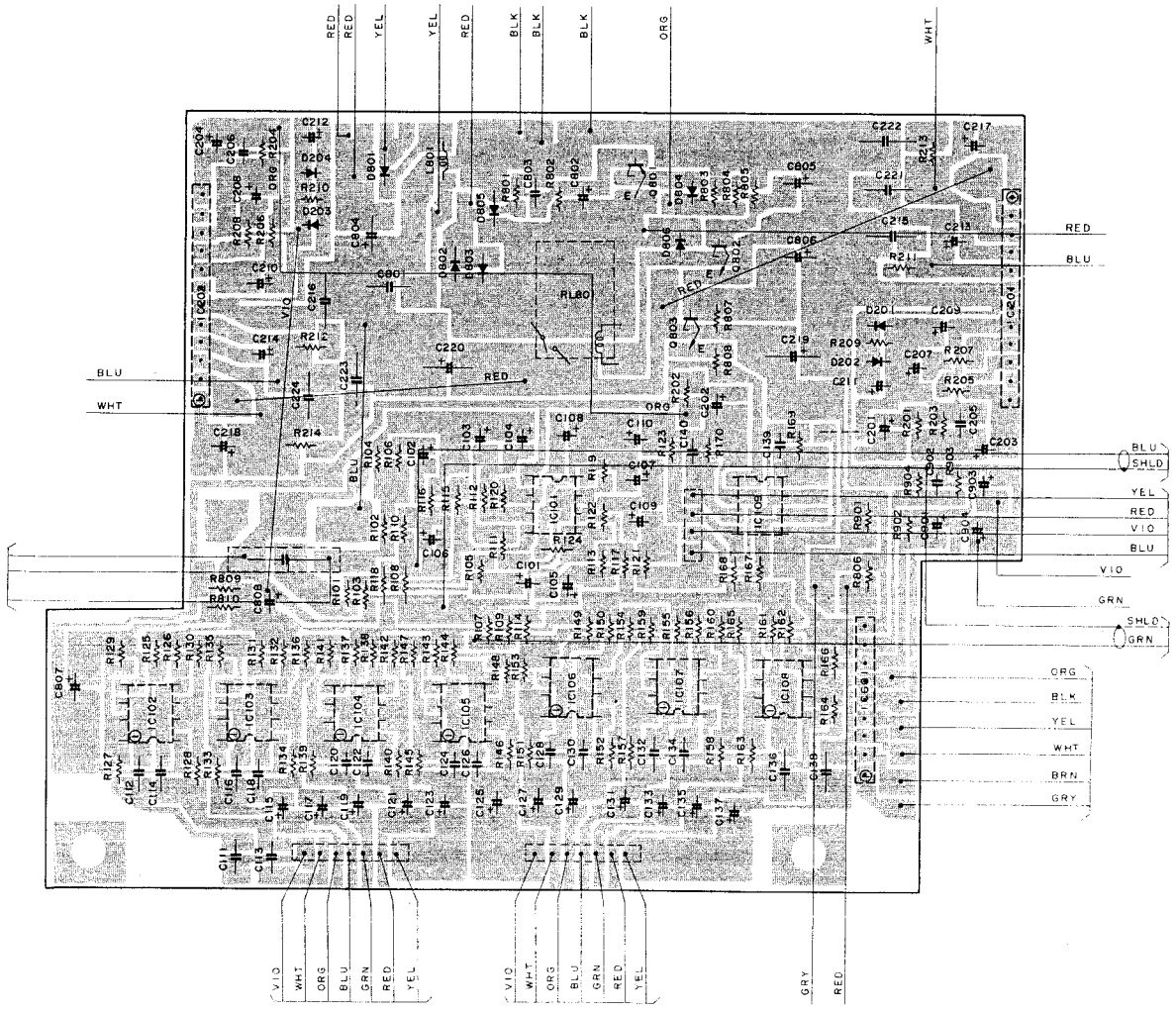
Transistors

	E	C	B
Q801	14.35	0	14.35
Q802	0	0	0.7
Q803	13.1	14.3	14.3



Top View

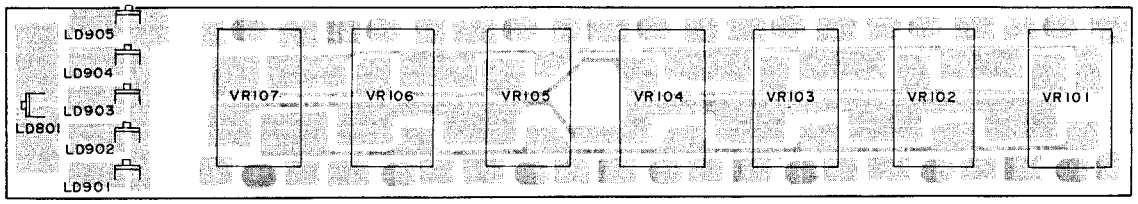
• Main P.C. Board



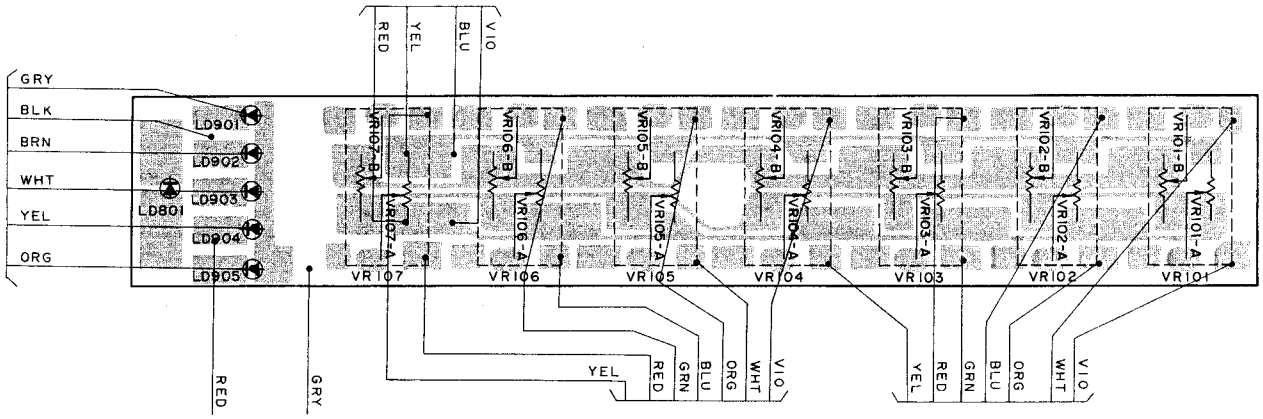
Bottom View

A B C D E F

• Fader Control P.C. Board

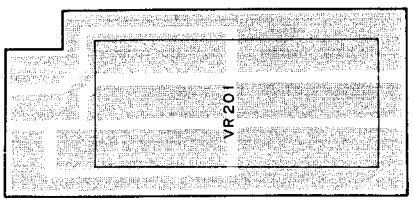


Top View

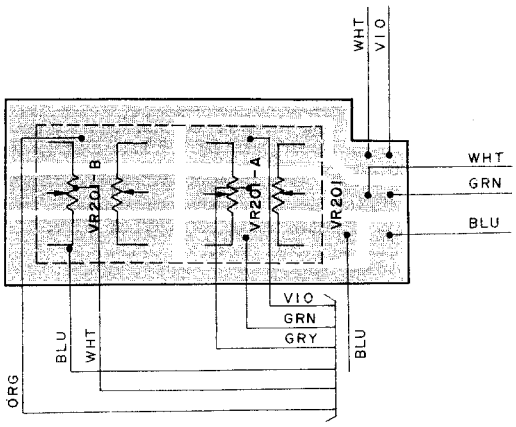


Bottom View

• Slide VR P.C. Board



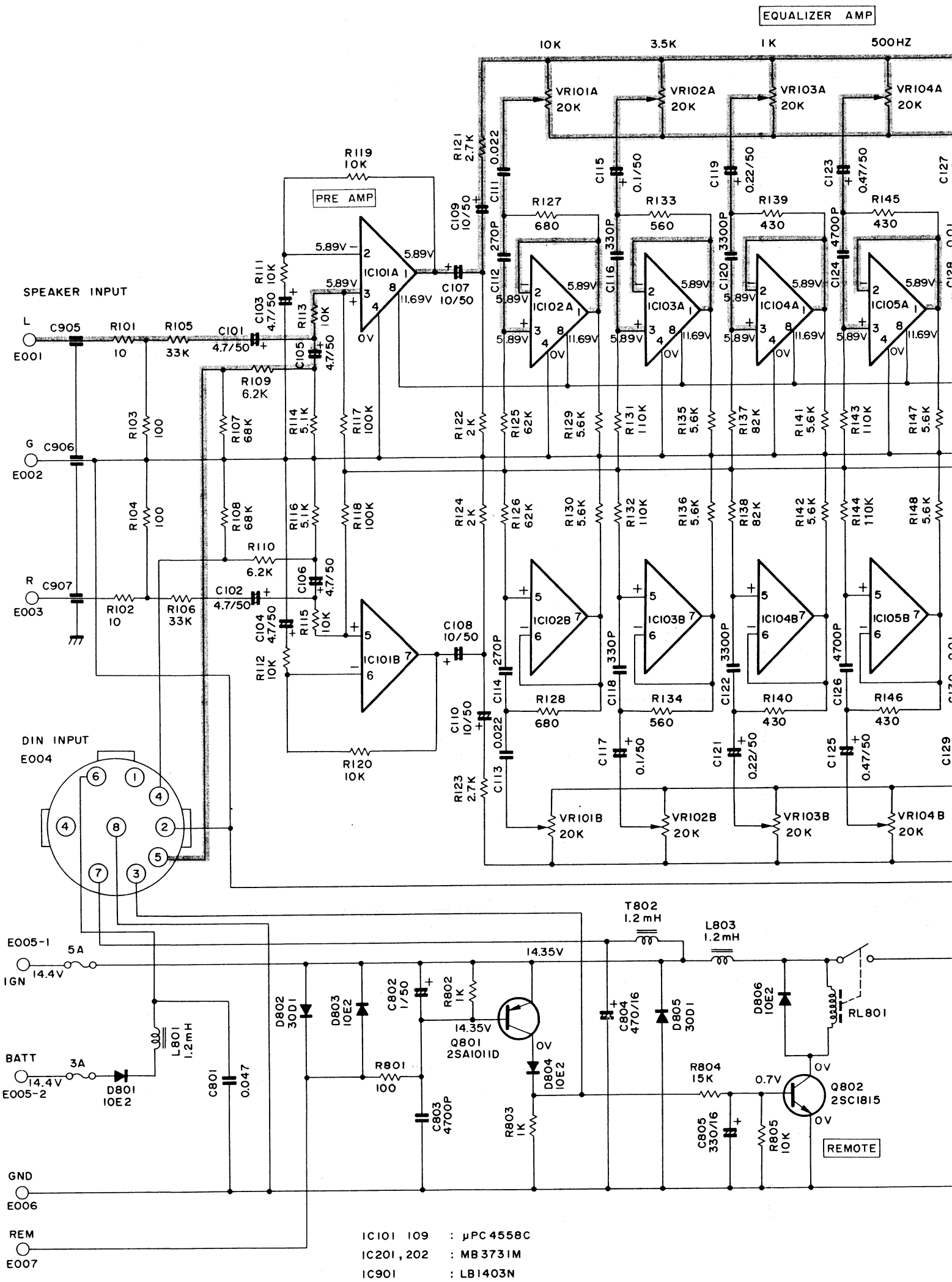
Top View



Bottom View

Schematic Diagram

ICs	IC101 IC102 IC103 IC104 IC105
Transistors	Q801 Q802
Diodes	D801 D802 D803 D804 D805 D806

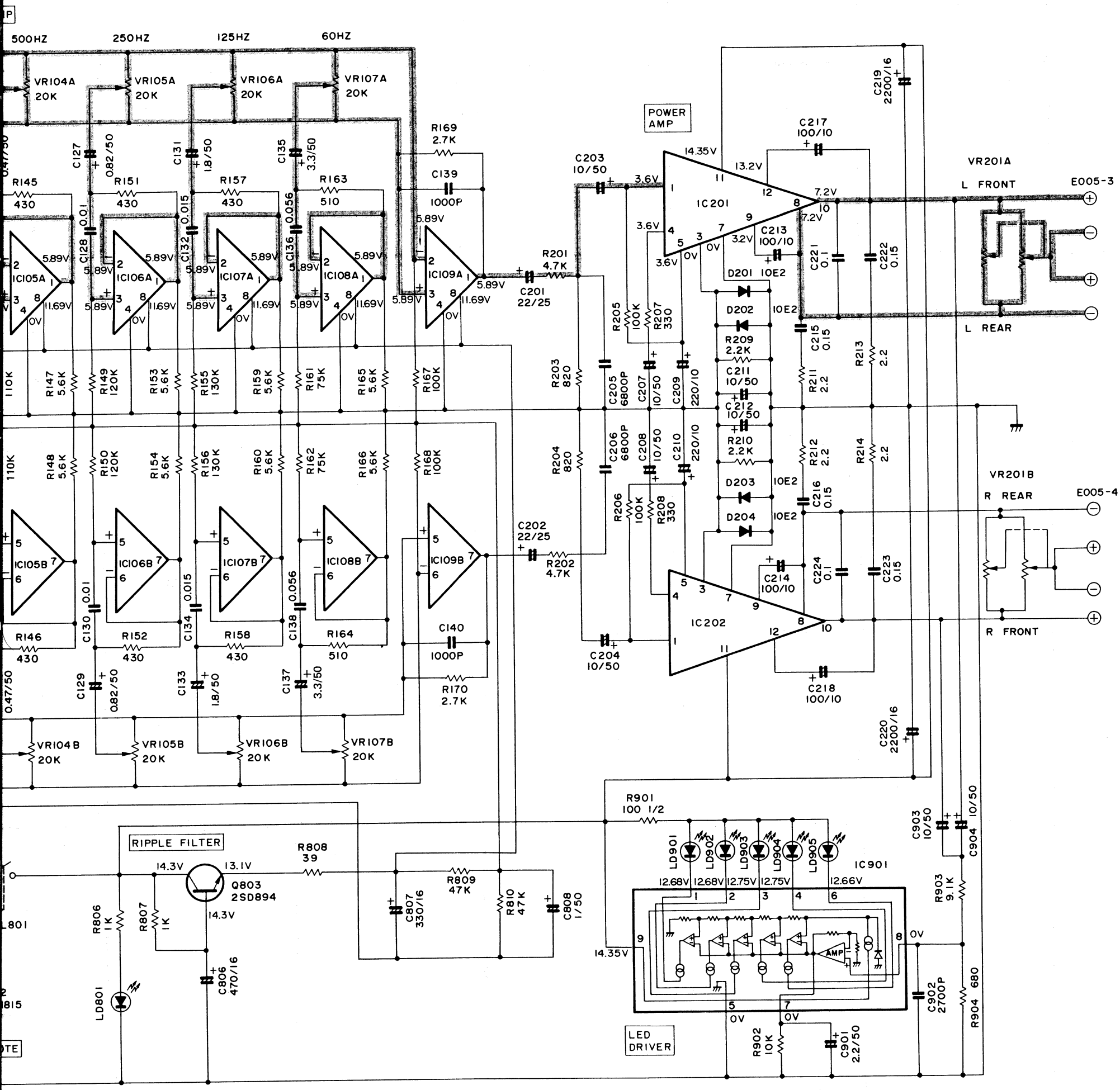


NOTES:

1. Diodes with description omitted are diode MA165TA or equivalent.
2. Transistors description omitted are transistor 2SD636 or equivalent.
3. Each voltage is measured in respect to the ground potential using a digital voltmeter under the following conditions.
   Signal: None is applied.
   Load: None is connected.
   Equalizer controls: At center
   Fader control: At center
   Switches: OFF
4. All resistance values are in ohms K=1,000 M=1,000,000
5. All resistors are rated at 1/8 watt, 5%
6. All capacitance values are in micro-farad (μF) P=10^{-6} μF
7. All capacitors are rated at 500WV

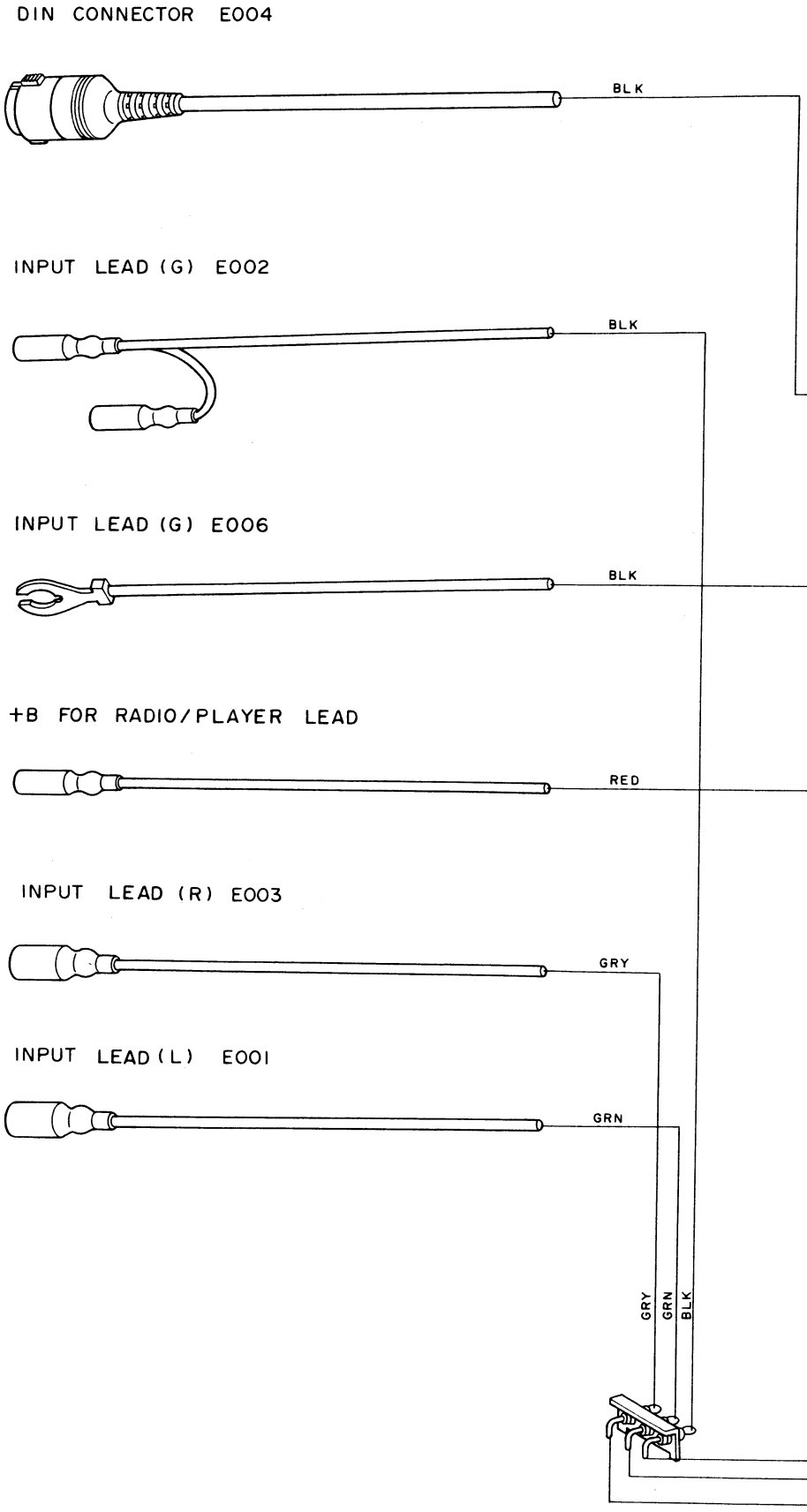
IC101 109	: μPC4558C
IC201, 202	: MB3731M
IC901	: LB1403N
LD801	: AA3432S (AMBER)
LD901	: LED 1 x 3 (GREEN)
LD903, 904	: LED 1 x 3 (AMBER)
LD905	: LED 1 x 3 (GREEN)
LD902	: LED 1 x 3 (RED)

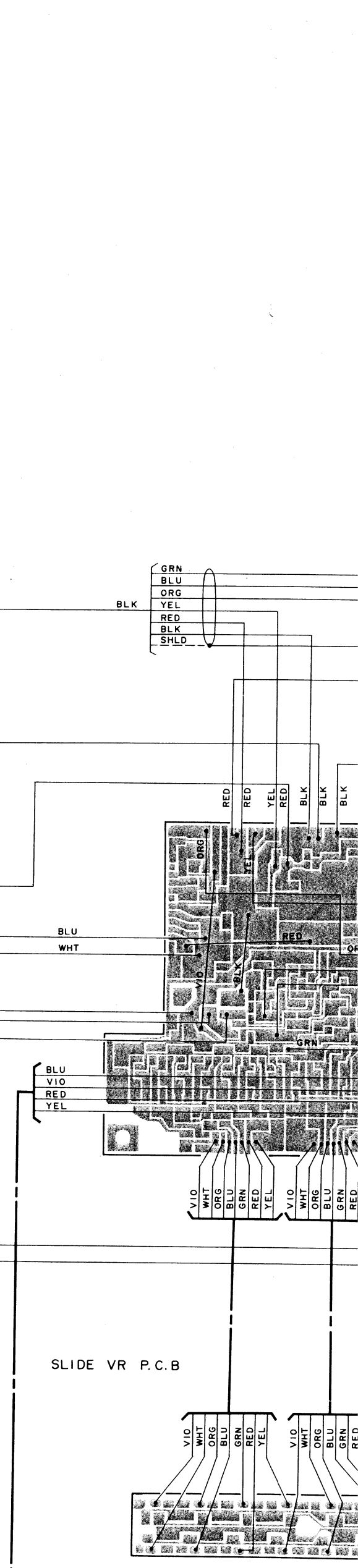
IC105	IC106	IC107	IC108								IC201	IC202	IC901	
		Q803												
											D201	D202		
								LD901	LD902		D203	D204	LD903	LD904	LD905



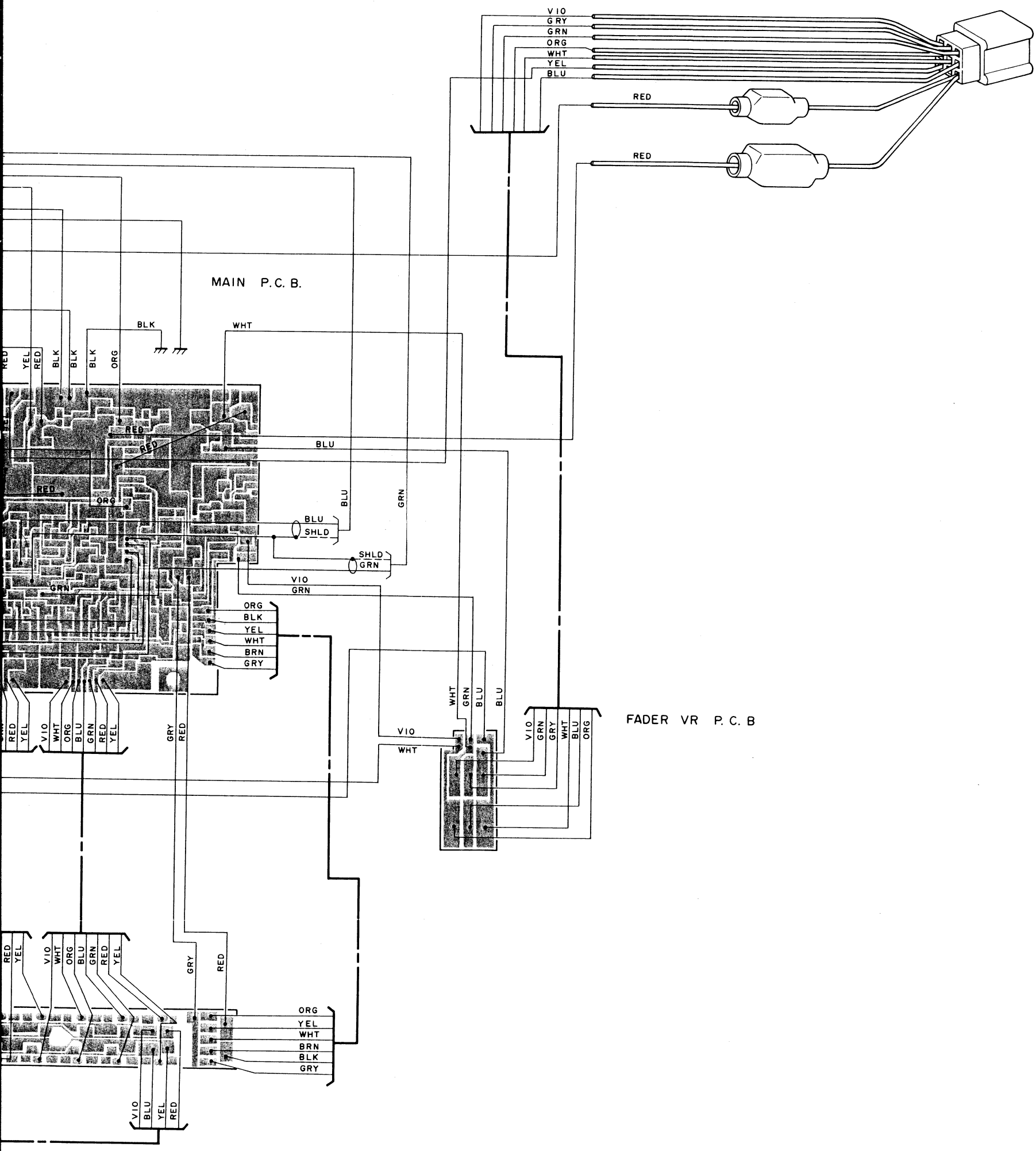
E F G H I J

Wiring Diagram





SPEAKER OUTPUT / POWER SUPPLY CONNECTOR
E005



Electrical Parts List

Carbon resistors of less than 1/4 watts are not entered on the parts list, so please confirm them using the schematic diagram.

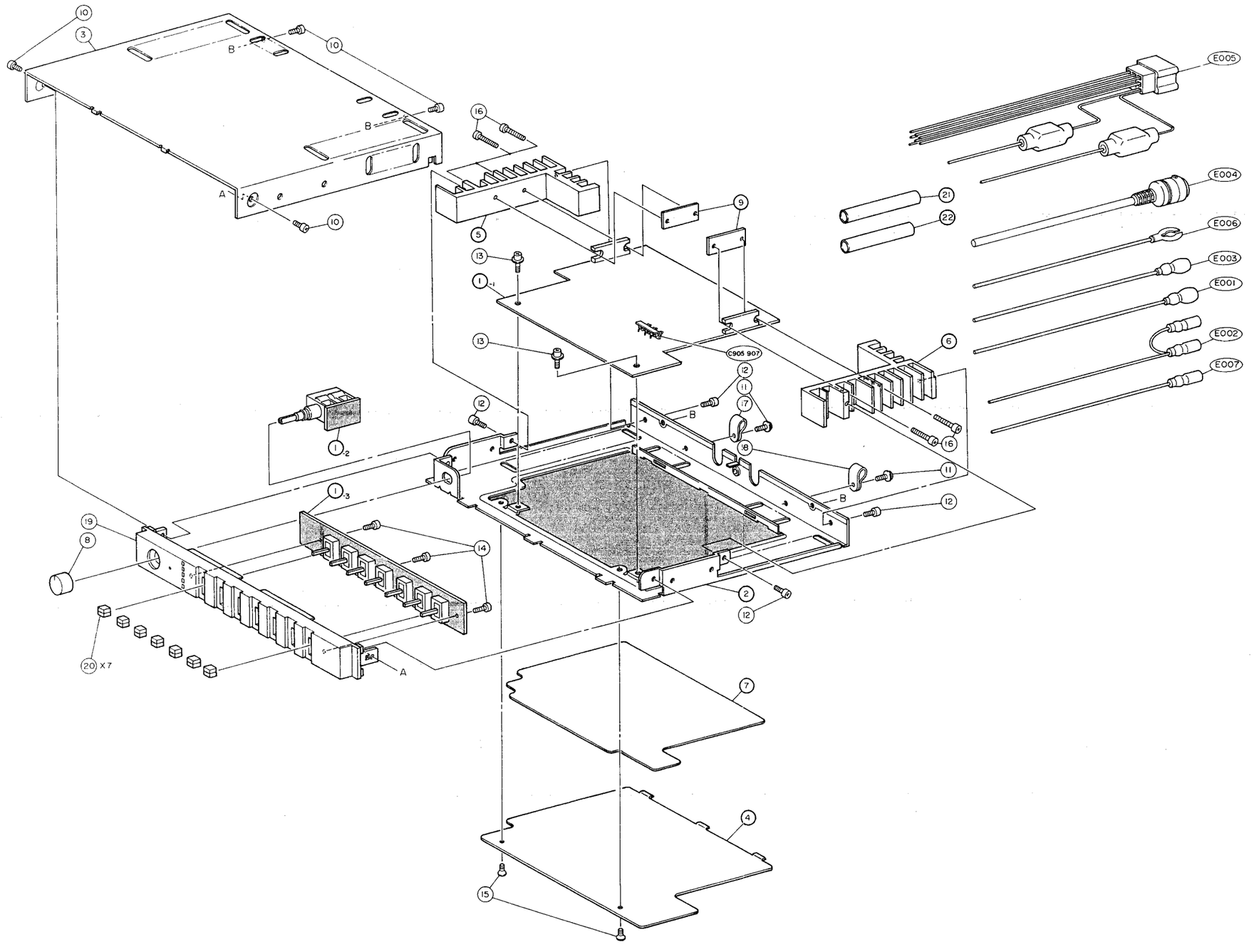
Symbol No.	Part No.	Description
	Panel Booster	
ICs		
IC101	51S43471U02	μPC4558C
IC102	51S43471U02	μPC4558C
IC103	51S43471U02	μPC4558C
IC104	51S43471U02	μPC4558C
IC105	51S43471U02	μPC4558C
IC106	51S43471U02	μPC4558C
IC107	51S43471U02	μPC4558C
IC108	51S43471U02	μPC4558C
IC109	51S43471U02	μPC4558C
IC201	51T53245F01	MB3731M
IC202	51T53245F01	MB3731M
IC901	51T61284F01	LB1403N
Transistors		
Q801	48T47145F01	2SA1011-D
Q802	48S43525F02	2SC1815-Y
Q803	48T47166F01	2SD894
Diodes		
D201	48C40235G02	10E2
D202	48C40235G02	10E2
D203	48C40235G02	10E2
D204	48C40235G02	10E2
D801	48C40235G02	10E2
D802	48S40870U01	30D1
D803	48C40235G02	10E2
D804	48C40235G02	10E2
D805	48S40870U01	30D1
D806	48C40235G02	10E2
LEDs		
LD801	48T50886F02	AA3432S(Orange)
LD901	48T66123F02	1X3(Green)
LD902	48T66123F01	1X3(Red)
LD903	48T66123F03	1X3(Orange)
LD904	48T66123F03	1X3(Orange)
LD905	48T66123F02	1X3(Green)
Filters/Transformer		
L801	25T30304T01	Choke Filter
L803	25T40405F01	Choke Filter
T802	25C40894G11	Choke Trans.

Symbol No.	Part No.	Description
Relay		
RL801	80T40631T02	SSD105P
Capacitors		
C101	23S41198U10	Electrolytic 4.7μF 50V
C102	23S41198U10	Electrolytic 4.7μF 50V
C103	23S41198U10	Electrolytic 4.7μF 50V
C104	23S41198U10	Electrolytic 4.7μF 50V
C105	23S41198U10	Electrolytic 4.7μF 50V
C106	23S41198U10	Electrolytic 4.7μF 50V
C107	23S41198U11	Electrolytic 10μF 50V
C108	23S41198U11	Electrolytic 10μF 50V
C109	23S41198U11	Electrolytic 10μF 50V
C110	23S41198U11	Electrolytic 10μF 50V
C111	08C44833J17	Mylar 0.022μF
C112	21C45322G05	Ceramic 270pF
C113	08C44833J17	Mylar 0.022μF
C114	21C45322G05	Ceramic 270pF
C115	23S41198U01	Electrolytic 0.1μF 50V
C116	21C45322G06	Ceramic 330pF
C117	23S41198U01	Electrolytic 0.1μF 50V
C118	21C45322G06	Ceramic 330pF
C119	23S41198U02	Electrolytic 0.22μF 50V
C120	08C44833J07	Mylar 3300pF
C121	23S41198U02	Electrolytic 0.22μF 50V
C122	08C44833J07	Mylar 3300pF
C123	23S41198U03	Electrolytic 0.47μF 50V
C124	08C44833J09	Mylar 4700pF
C125	23S41198U03	Electrolytic 0.47μF 50V
C126	08C44833J09	Mylar 4700pF
C127	23S41198U05	Electrolytic 0.82μF 50V
C128	08C44833J13	Mylar 0.01μF
C129	23S41198U05	Electrolytic 0.82μF 50V
C130	08C44833J13	Mylar 0.01μF
C131	23S41198U07	Electrolytic 1.8μF 50V
C132	08C44833J15	Mylar 0.015μF
C133	23S41198U07	Electrolytic 1.8μF 50V
C134	08C44833J15	Mylar 0.015μF
C135	23S41198U09	Electrolytic 3.3μF 50V
C136	08C44833J21	Mylar 0.056μF
C137	23S41198U09	Electrolytic 3.3μF 50V
C138	08C44833J21	Mylar 0.056μF
C139	08C44833J01	Mylar 1000pF
C140	08C44833J01	Mylar 1000pF
C201	23S41198U12	Electrolytic 22μF 25V
C202	23S41198U12	Electrolytic 22μF 25V
C203	23S41198U11	Electrolytic 10μF 50V

Symbol No.	Part No.	Description
C204	23S41198U11	Electrolytic 10μF 50V
C205	08C44833J11	Mylar 6800pF
C206	08C44833J11	Mylar 6800pF
C207	23S41198U11	Electrolytic 10μF 50V
C208	23S41198U11	Electrolytic 10μF 50V
C209	23S41198U14	Electrolytic 220μF 10V
C210	23S41198U14	Electrolytic 220μF 10V
C211	23S41198U11	Electrolytic 10μF 50V
C212	23S41198U11	Electrolytic 10μF 50V
C213	23S41198U13	Electrolytic 100μF 10V
C214	23S41198U13	Electrolytic 100μF 10V
C215	08C44833J27	Mylar 0.15μF
C216	08C44833J27	Mylar 0.15μF
C217	23S41198U13	Electrolytic 100μF 10V
C218	23S41198U13	Electrolytic 100μF 10V
C219	23C42170G31	Electrolytic 2200μF 16V
C220	23C42170G31	Electrolytic 2200μF 16V
C221	08C44833J25	Mylar 0.1μF
C222	08C44833J27	Mylar 0.15μF
C223	08C44833J27	Mylar 0.15μF
C224	08C44833J25	Mylar 0.1μF
C801	21C45322G13	Ceramic 0.047pF
C802	23S41198U06	Electrolytic 1μF 50V
C803	08C44833J09	Mylar 4700pF
C804	23S41198U16	Electrolytic 470μF 16V
C805	23S41198U15	Electrolytic 330μF 16V
C806	23S41198U16	Electrolytic 470μF 16V
C807	23S41198U15	Electrolytic 330μF 16V
C808	23S41198U06	Electrolytic 1μF 50V
C901	23S41198U08	Electrolytic 2.2μF 50V
C902	08C44833J06	Mylar 2700pF
C903	23S41198U11	Electrolytic 10μF 50V
C904	23S41198U11	Electrolytic 10μF 50V
Resistors		
R901	06D44744G20	FC 100ohms 1/2W
VR101	18T67249F01	Slide VR(20KB)
VR102	18T67249F01	Slide VR(20KB)
VR103	18T67249F01	Slide VR(20KB)
VR104	18T67249F01	Slide VR(20KB)
VR105	18T67249F01	Slide VR(20KB)
VR106	18T67249F01	Slide VR(20KB)
VR107	18T67249F01	Slide VR(20KB)
VR201	18T67250F01	Fader Control

Symbol No.	Part No.	Description
Miscellaneous		
E001	01A55286T02	Assy., Input Lead (L)
E002	01A55286T03	Assy., Input Lead (G)
E003	01A55286T01	Assy., Input Lead (R)
E004	01T67251F01	Assy., Input Din Connector
E005	01D45255T16	Assy., Speaker Output/Power Supply Connector
E006	30T40438U08	Assy., Input Lead (G)
E007	30A58160F01	Assy., +B for Radio/Player lead
C905	08T68197F01	Cap., Through 1000pF
C906	08T68197F01	Cap., Through 1000pF
C907	08T68197F01	Cap., Through 1000pF

Exploded View (General)



Mechanical Parts List
Packing Parts List

Symbol No.	Index	Part No.	Description
1	3C	*	Panel Booster
2	4E	*	Chassis Base
3	2A	15C58119T01	Cover Top
4	6E	*	Plate Bottom
5	3C	*	Heat Sink (L)
6	3F	*	Heat Sink (R)
7	5E	*	Insulator Fiber
8	4A	36B51859T01	Knob Rotary
9		*	Bracket, IC
10	2E	03S44205T01	Screw, Pan (M3x6)
11		03S44205T02	Screw, Cup (M3x8)
12		03S44205T03	Screw, Pan (M3x6)
13	3C	03S44205T04	Screw, W/Washer(M3x5)
14	4C	03S40012T01	Screw, Tapping (M2x8)
15	6C	03S40011T01	Screw, Countersink (2.6x4)
16		03S40011T02	Screw, Pan (2.6x12)
17	3E	42C67007F04	Clamp Cord
18	4E	42C67007F05	Clamp cord
19	4A	13C58112T01	Nosepiece
20	5A	36B58116T01	Slide Knob
21	2F	*	Sumi Tube (60mm)
22	2F	*	Sumi Tube (55mm)

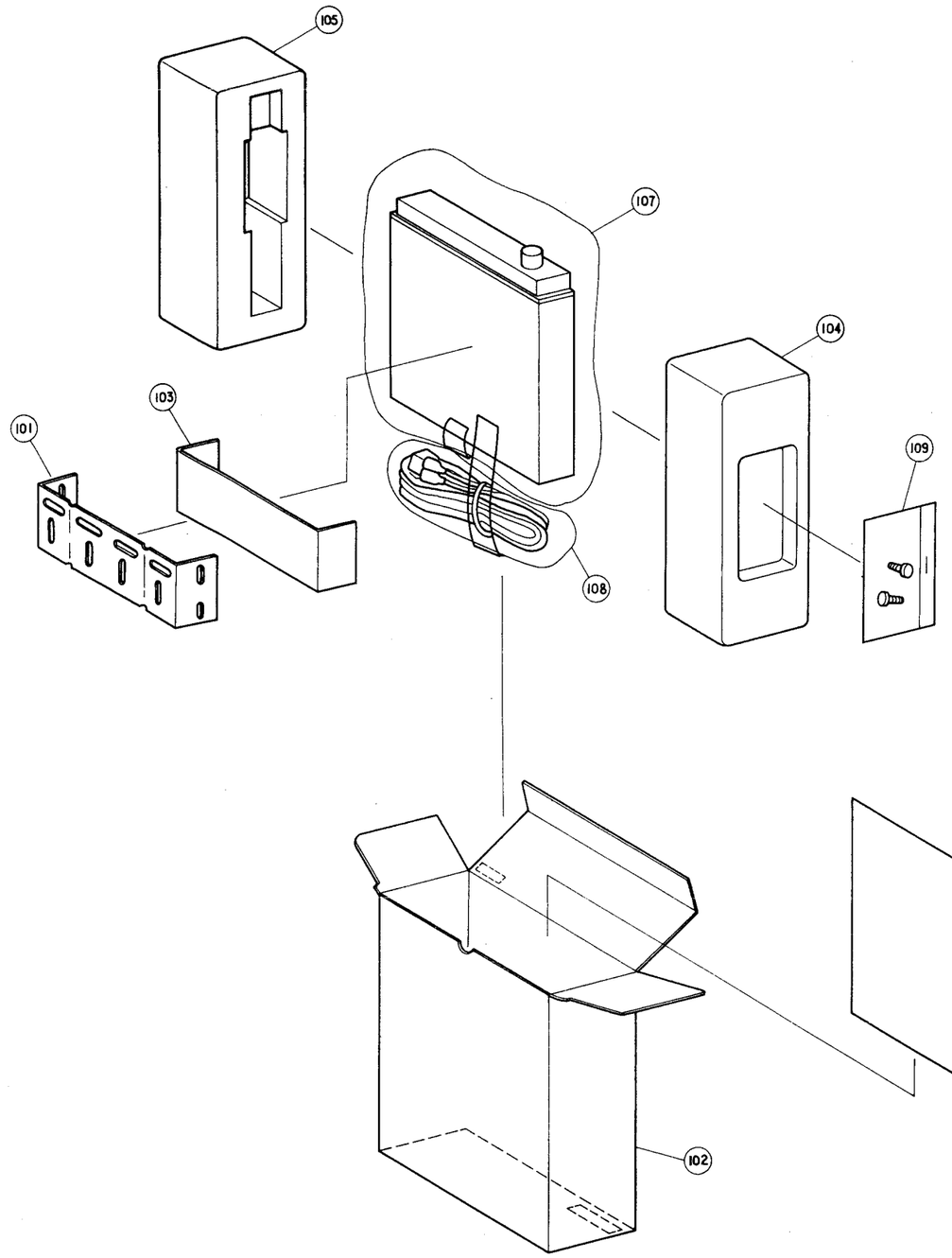
Symbol No.	Part No.	Description
	Packing Assembly Parts	
101	07B52108F01	Bracket, "U"Mtg.
102	56C40409T01	Carton, Packing (Ind.)
103	54A51864T01	Pad. Sheet
104	56C60878T01	Tray Packing (L)
105	56C60878T02	Tray Packing (R)
△106	01E01352S01	Assy., Pamphlet
■106	68P66888F04	Owner's Manual
107	56B40990T21	Sack Polyethylene (Set)
108	01D45256F14	Assy., Kit Wire
109	01V53500F20	Assy., Kit Installation
	Labels	
	△54A58169D01	Label Composite
	■54B42124G01	Label Model No.
	*	Label Korea
	*	Label Speaker (R)
	*	Label Speaker (L)
	*	Label Connector

Note: *The parts without part number are not supplied.

△ for North American Version only

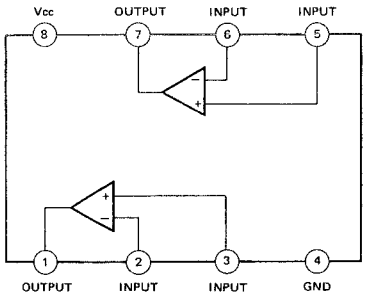
■ for General Foreign Version only

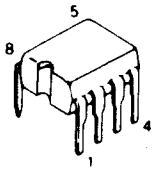
Packing Method View



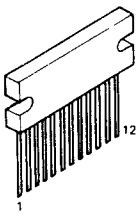
Semiconductors Lead Identifications

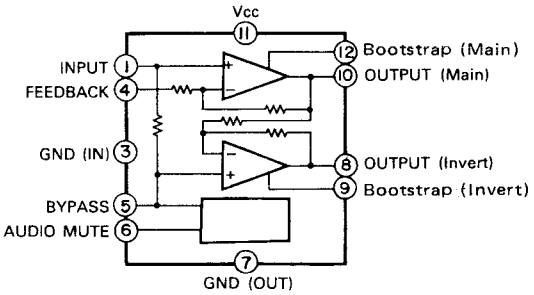
μPC4558C IC101–IC109



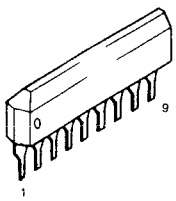


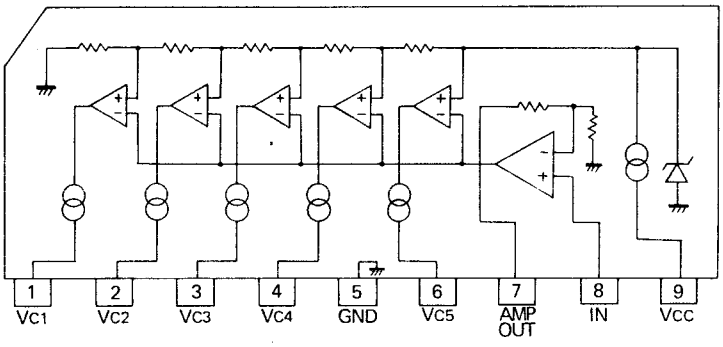
MB3731M IC201, IC202



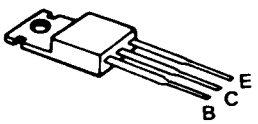


LB1403N IC901





2SA1011 Q801



2SD894 Q803
2SC1815 Q802